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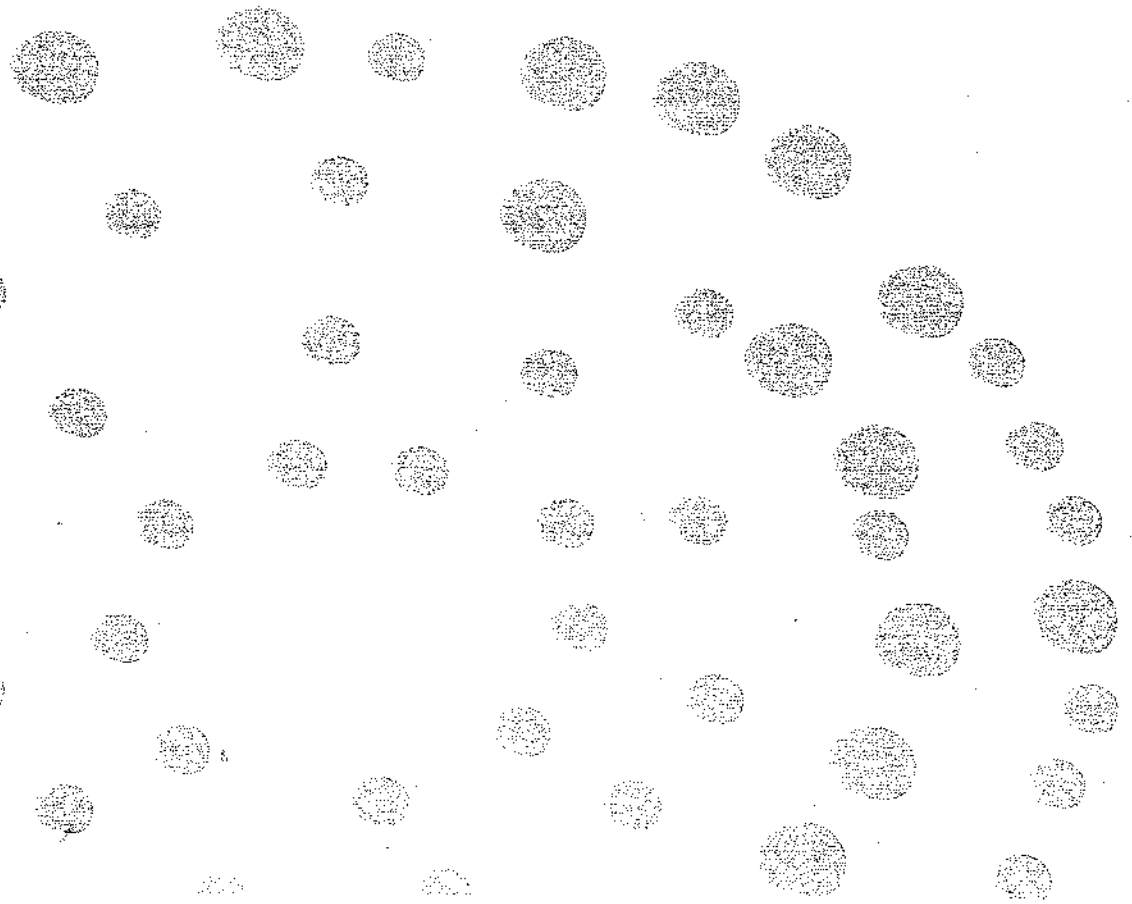
THE UNIVERSITY OF BIRMINGHAM

Boreholes west of Metchley Roman fort, Birmingham 2004

Post-Excavation Assessment



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Boreholes west of Metchley Roman fort, Birmingham

Post-Excavation Assessment 2004

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Boreholes west of Metchley Roman fort, Birmingham, 2004

Post-Excavation Assessment

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BOREHOLE INVESTIGATIONS WEST OF METCHLEY FORT, BIRMINGHAM, 2004

POST-EXCAVATION ASSESSMENT

1.0: SUMMARY

A borehole profile was dug in December 2004 across an infilled streamcourse to the west of Metchley Roman fort, Birmingham (centred on NGR SP 045836), in advance of a roadscheme associated with a new hospital development. The fieldwork was undertaken by Ground Investigation and Piling Limited on instruction from Birmingham Archaeology acting on behalf of University Hospital Birmingham NHS Trust. A total of eight percussive boreholes, measuring 0.2m in diameter were excavated across the infilled streamcourse.

The boreholes tested deposits of natural sands and gravels towards the base of the sequence, at depths of between 3-5m below the modern ground surface. Above were organic deposits, overlain by modern dumped deposits. Few identifiable plant remains were recovered. Those found were broken, and may have derived from a bird or animal dropping. None of the 20 samples selected for assessment were worthy of further study. It is however recommended that a further batch of six samples be assessed from deposits not examined for this report, with more detailed analysis and reporting to be undertaken, if merited by the results.

2.0: INTRODUCTION

This report describes the result of borehole investigations undertaken across an infilled streamcourse to the west of Metchley Roman fort, Birmingham (centred on NGR SP 045836, Fig. 1), in advance of a roadscheme associated with a new hospital development. The fieldwork was undertaken by Ground Investigation and Piling Limited on instruction from Birmingham Archaeology acting on behalf of University Hospital Birmingham NHS Trust. This report provides proposals to bring the results to publication in accordance with the Management of Archaeology Projects 2.

The area investigated comprised rough ground, covered by trees and shrubs at the time of the borehole fieldwork. The area subject to the borehole investigation comprised a north-south aligned infilled streamcourse. This streamcourse defined the western edge of a west-facing scarp to the west of Metchley Roman fort. The eastern edge of this scarp, adjoining the western fort defences contained a Claudian civilian settlement suceeded by ditched animal compounds associated with a Neronian military stores depot. In the post-Roman period the area comprised part of a hunting park. For further details concerning Metchley fort see Jones (2001 and 2005).

Trial-trenching had been undertaken in 1999 (Jones 1999) adjoining the streamcourse tested by the boreholes, together with a further streamcourse, further to the east, which

was not so examined in 2004. Trenches C18 and C16 were dug just to the east of the streamcourse examined by the borehole investigations. In Trench C18 (Jones 1999, appendix 1 and fig 3) the subsoil was recorded at a depth of 1.8m below the modern surface. This was sealed by a layer of grey alluvium, 0.2m in depth, in turn overlain by 1.6m of modern dumping. To the south, in Trench C16, the subsoil was recorded at 1.1m below the modern ground surface, and was overlain by 0.2m of red-brown alluvium. Trench C17, which was positioned over the easternmost streamcourse (not examined by the borehole investigation) identified the subsoil at a depth of 3.3m below the modern surface. Again, the subsoil was sealed by a layer of alluvium, here predominantly grey in colour, measuring 0.5m in depth. No organic deposits were identified by trial-trenching. It may be assumed that any organic deposits overlying the alluvium may have been scoured-out by machine movement during the dumping of overburden, perhaps during the 1960s.

Limited investigations to the north of Vincent Drive in 1988-9 identified a group of burnt mounds, comprising upcasts of heat-shattered stone, set within a matrix of charcoal-rich soil (Jones 1988, 1989), but no detailed investigation was possible at that time.

3.0: METHODOLOGY

The fieldwork was undertaken in accordance with a Written Scheme of Investigation (Birmingham Archaeology 2004) approved by Birmingham City Council.

The aims of the work were as follows:

1) To reconstruct the sequence of alluvial deposits within the stream courses.
2) To investigate potential for evidence of Bronze Age activity associated with the nearby burnt mounds.
3) To examine the evidence for 1st century AD landscape change, associated with the layout and use of the military complex.
4) To examine the evidence for landscape change after abandonment of the complex.
5) To consider the evidence for Saxon and medieval cultivation in the surrounding area, and to compare this with data provided by pollen sampling of the southern fort ditch.
6) To consider the evidence for landscape change during the use of, and after the abandonment of, the hunting park.
7) To provide a dated framework (C14 dates) for the sequence of landscape change.
8) To compare the sequence with the evidence provided by the testing of other waterlogged deposits within the Birmingham area.

A total or eight boreholes were dug to a maximum depth of 5m below the modern surface using a percussion rig. The boreholes were located at 2m intervals along an east-west aligned profile crossing the westernmost of the two parallel north-south aligned stream courses. It was originally intended to excavate a total of 12 boreholes, and also to test the easternmost of the two parallel infilled stream courses, but it was not possible to complete the borehole investigations before development groundworks commenced

because of access problems caused by poor weather conditions. The eastern streamcourse was set within a concrete culvert to the north of the borehole profile, although it was not possible to determine if the culvert continued into the area of the borehole profile because of the depth of modern dumping. The natural ground surface was only located in boreholes 1-7; borehole 8 was not fully dug.

The borehole deposits were stored in numbered plastic sleeves each 1m in length. The sleeves were opened at Birmingham Archaeology and the deposits were systematically recorded on pre-printed pro-formas. A selection of deposits, comprising both organic and sand or silt-based deposits were selected for specialist assessment.

4.0: RESULTS

4.1: Description

Details of the borehole results are tabulated (Table 1).

The natural subsoil in the east of the profile (boreholes 4-7) mainly comprised sand. The sand deposits in borehole 4 alternated between orange (4010) orange-brown (4006, 4009) red-orange-brown (4007) and brown-orange (4008) in colour. The earliest identified deposit in borehole 5 was an orange clay-sand (5011), overlain by further sand deposits (5005-5010). These sands were mostly red-grey in colour (5007, 5008, 5010), with deposits of grey-orange sand (5009) and red sand (5006), also recorded. Grey-brown sand (5005) was recorded at the top of the sequence. In borehole 6 the natural sand deposits (6012-6009) were predominantly orange in colour, although orange-brown (6012) and orange-yellow (6009) sands were recorded at the base and the top of the sequence, respectively. These subsoils also included orange clay-sand (6010) and brown-grey sand (6011). Orange-brown sands were recorded at the base of the sequence in borehole 7 (7009-7011). Layer 7009 was overlain by a deposits of grey sand (7007-7008).

The basal sequence of deposits in boreholes 1-3 was perhaps less coherent. In borehole 3 the earliest deposit identified was a brown-orange silt-clay (3008) overlain by a deep layer of brown-orange silt-clay (3007). Above were layers of red-orange sand-silt (3006) and blue-yellow clay (3005), sealed by a deposit of brown-yellow silt-sand (3004). The basal deposits in borehole 2 comprised silts, sands and clays (2008-2014). Brown-red silt-sand (2014) was recorded at the base of the sequence, overlain by thin lenses of silt-clay and clay (2011-2013), possibly deposited within a stream channel. Above an organic layer of silt-sand (2010), were deposits of silt-sand or silt-clay (2008-2009), overlain by sand (2007). The only subsoil deposits identified in borehole 1 were a layer of red-orange sand-clay (1011) overlain by a shallow deposit of red-orange sand-clay (1010).

The natural subsoil in borehole 4 were sealed by a layer of grey, organic silt-clay (4005). An organic deposit (5004), also containing gravel was recorded at a similar depth in borehole 5. A layer of grey-brown silt (6008) was recorded at a depth of 2.1m below the modern surface in borehole 6. It was overlain by a further organic grey clay-silt (6007),

recorded at a similar depth to layer 5004 (borehole 4) from the modern surface. Layers 4005 and 6007 may represent the same water-lain deposit, located towards the top outer edges of an infilled stream channel, which was finally infilled with deposit 5004, and later sealed by modern overburden. Subsoil layer 7007 was overlain by organic grey-black silt-sand (7006). Above was a yellow-orange silt-sand (7005), orange-grey silt-sand (7004), and grey silt-sand (7003), in that order. Deposits 7003-7007 may represent the infills of a stream channel.

Modern material, comprising clinker (1009) was recorded at a depth of 4.3m in borehole 1 (deposits 1000-1009); this may represent a backfilled modern disturbance, such as a service trench. Elsewhere, the topsoil and modern overburden measured an average of 2m in depth in boreholes 1-8. In borehole 2 the ealiest overburden (2006-2000) may be layer 2006, which contained modern brick fragments. In borehole 3 the modern overburden was 1.9m in depth (3000-3003), and a similar depth was recorded in borehole 4 (4001-4004). The overburden in boreholes 1-4 was mixed, comprising deposits of sand, silt and clay. In contrast, the overburden in boreholes 5-7 mainly comprised sand, mirroring the predominant composition of the underlying subsoil deposits in these boreholes. The overburden measured 1.75m in depth in borehole 5 (5001-5003), 1.45m in borehole 6 (6001-6006) and 2m in depth in both boreholes 7 (7001-7002) and 8 (8001-8003). This overburden differed in composition, possibly as a result of different episodes of dumping. It mainly comprised brown or red-brown silt-clay, becoming higher in silt content towards the eastern end of the profile.

It is difficult to see much overall coherence in the sequence of subsoil deposits, particularly in the west of the borehole profile. It may be that the natural deposits derive from a number of interleaved and re-worked glacial channels, which might account for the difficulty in 'following' the layers horizontally across the sequences provided by borehole investigations. If this interpretation was correct the deposits would have been laid along an inclined plane, which would explain why horizontal continuity could not be established across the sequence. Traces of alluvial deposits within former possible stream channels have been identified in a number of the boreholes. Above, the strata mainly comprises modern dumped deposits, of no archaeological interest.

TABLE 1: Details of deposits identified

BOREHOLE BH 1

No	*Top*	*Description*	*Interpretation*
1000	0m	Topsoil	Modern
1001	0.15m	Brown orange silt-clay	Modern
1002	0.4m	Red-brown silt-clay	Modern
1003	1.3m	Black-brown silt-clay	Modern
1004	1.7m	Dark orange-brown silt-clay	Modern
1005	2.22m	Orange-brown sand-clay	Modern
1006	2.7m	Red-orange sand-clay	Modern
1007	3.3m	Red-orange silt-clay with frequent charcoal	Modern
1008	3.65m	Red-orange silt-clay with charcoal	Modern
1009	4.04m	Clinker with red sand-clay	Modern
1010	4.45m	Red-orange sand-clay	Subsoil
1011	4.55m	Red-orange silt-sand	Subsoil

BOREHOLE BH 2

2000	0m	Dark brown silt-clay	Modern
2001	0.2m	Brown-orange silt-clay	Modern
2002	0.7m	Red-brown sand-clay	Modern
2003	0.95m	Black-yellow silt-sand	Modern
2004	1.2m	Light brown sand-clay	Modern
2005	1.45m	Black-brown silt-sand with charcoal and stone	Modern
2006	1.7m	Brown silt-sand with brick and charcoal	Modern
2007*	2.15m	Orange-yellow sand with pebbles	Modern
2008	2.5m	Red-brown silt-sand	Alluvium
2009	3m	Brown-red silt-clay	Alluvium
2010*	4m	Orange silt-sand	Alluvium
2011*	4.3m	Orange silt-clay flecked with charcoal	Alluvium
2012	4.4m	Orange-yellow clay with pebbles	Alluvium
2013	4.5m	Red-brown silt-clay with charcoal	Alluvium
2014	4.55m	Brown-red silt-sand	Subsoil

BOREHOLE BH 3

3000	0m	Topsoil	Modern
3001	1m	Modern	Modern
3002	1.3m	Orange-brown sand-silt-clay with small stone	Modern
3003	1.55m	Dark grey-black silt-clay	Modern
3004	1.9m	Brown-yellow silt-sand	Alluvium
3005	2.25m	Blue-yellow clay	Alluvium
3006*	2.75m	Red-orange silt-sand, flecked with charcoal	Alluvium
3007*	2.8m	Brown-orange silt-clay	Subsoil
3008	2.8m	Brown-orange silt-clay	Subsoil

BOREHOLE BH 4

4001	0m	Topsoil	Modern
4001	0.17m	Sand	Modern
4002	0.75	Waterlogged organic	Modern
4003	0.8m	Silt-sand	Modern
4004	1.4m	Waterlogged organic	Modern
4005*	2m	Grey organic silt-clay	Alluvium
4006*	2.55m	Orange-brown sand	Subsoil
4007*	3.1m	Red-orange-brown sand	Subsoil
4008*	3.56m	Brown-orange sand	Subsoil
4009*	4m	Orange-brown sand	Subsoil
4010	4.5m	Orange sand	Subsoil

BOREHOLE BH 5

5001	0m	Topsoil	Modern
5002	0.15m	Brown stony silt-sand	Modern
5003	0.65m	Brown-orange sand	Modern
5004	1.75	Black organic gravel	Alluvium
5005	1.95m	Grey-brown sand	Subsoil
5006*	2.3m	Red sand	Subsoil
5007	2.6m	Red-grey sand with stone	Subsoil
5008*	2.85m	Red sand with flecks of grey sand	Subsoil
5009*	3.19m	Grey-orange sand	Subsoil
5010	3.4m	Soft red-grey sand	Subsoil
5011	3.64m	Compact orange clay-sand	Subsoil

BOREHOLE BH 6

6001	0m	Topsoil	Modern
6002	0.12m	Grey-brown clay-sand	Modern
6003	0.36m	Grey-brown clay-sand	Modern
6004	0.65m	Red sand	Modern
6005	0.9m	Grey-brown clay-sand	Modern
6006	1.25m	Clay-silt-sand	Modern
6007*	1.45m	Grey clay-silt	Alluvium
6008*	2m	Grey-brown silt-sand	Alluvium
6009*	2.33m	Orange-yellow sand	Subsoil
6010*	2.65m	Orange clay-sand	Subsoil
6011*	3m	Brown-grey sand	Subsoil
6012	3.45m	Orange-brown sand	Subsoil

BOREHOLE BH 7

7001	0m	Brown-red silt-sand	Modern
7002	1.3m	Grey-brown silt-sand	Modern
7003	1.5m	Grey silt-sand	Alluvium
7004	1.68m	Orange-grey silt-sand	Alluvium
7005	1.86m	Yellow-orange silt-sand	Alluvium
7006*	2m	Dark grey-black organic silt-sand	Alluvium
7007	2.36m	Grey sand	Subsoil
7008	2.53m	Orange sand	Subsoil
7009*	2.75m	Orange sand	Subsoil
7010	3.08m	Light brown sand	Subsoil
7011	3.5m	Orange sand	Subsoil

BOREHOLE BH 8

8001	0m	Topsoil	Modern
8002	1.15m	Brown silt-sand	Modern
8003	1.75m	Brown silt-sand	Modern

KEY: * sample assessed by Greig below

4.3: Quantification of archive

The archive comprises a total of 82 context records, and hand-drawn borehole profiles, which together with the administration file form the site archive.

5.0: ENVIRONMENTAL ASSESSMENT by James Greig

5.1: Summary

The borehole samples contained very little organic material and do not seem to be useful for further work.

5.2: Objectives

The objective was to test the sediments of a stream valley to find out if any deposits useful for environmental archaeology had been deposited there.

5.3: Samples

A number of boreholes were sunk across the valley, and the material from these collected to investigate the stratigraphy. Twenty samples from six of the boreholes were submitted for an evaluation of their content and likely potential for further work.

5.4: Laboratory work

A subsample of 60-220 ml was measured out from each sample. It was broken down in water, and the lighter, more organic, fraction washed over to separate it from the inorganic material, and caught in a 800 µm sieve. The washover was sorted in water under a x7 stereo microscope. The results are noted in Table 1.

5.5: Results

TABLE 2: Assessment results

Layer	*Quantity (ml)*	*Contents*
Borehole 2		
2010	60	red sand; no washover
2011	100	red sand/silt/clay; a few possible coal ash fragments in washover
2007	100	sand, stones; small washover with roots, coal, charcoal and 1 seed of *Fallopia convolvulus* (black bindweed)
Borehole 3		
3006	100	sand; very little washover, charcoal/carbon
3007	100	clay with sand, large lump of coal; small washover, coal fragments
Borehole 4		
4005	120	clay and organic material; washover includes woody debris and possible bark fragments, 8 *Rubus* cf *idaeus* (?wild raspberry), 1 *Rubus* cf *glandulosus* (?bramble), coal, carbon spheres, wood charcoal, beetle remains
4006	100	sandy, silt; virtually no washover
4007	60	sand silt and clay; no washover
4008	100	sand and silt; coal fragments
4009	60	sand silt and clay; virtually no washover
Borehole 5		
5006	220	sand, small stones; very small washover with roots, leaf and other organic debris
5008	180	sand, stone; very small washover with some organic debris, leaf, 1 *Sambucus nigra* (elder) seed
5009	200	sand, stones; almost no washover
Borehole 6		
6007	120	mixed sediment; wood charcoal, rooty material, coal, beetle. 5 *Sambucus nigra* (elder), 2 *Rumex* sp. (dock), tree bud scales
6008	80	clay, sand, some organic material; coal, carbon spheres, fly puparia, some plant debris
6009	120	yellowish clay; very small washover, 1 fragment of wood charcoal
6010	80	clay, silt, sand; negligible washover
6011	100	clay, silt, sand; negligible washover, some coal
Borehole 7		
7006	60	some unidentifiable plant debris, 1 beetle, wood charcoal, carbon spheres, coal
7009	220	clay, sand and stones; very small washover, some organic debris but nothing identifiable

5.6: Discussion

Most of the borehole samples were a red silt-sand which contained very little light material that could be washed over into the sieve, and appeared to be from a more or less natural deposit. The samples with some organic content showed this by their darker colour and clayey content, such as layers 4005 and 6007. However even with these, some

of the dark colour must have come from the charcoal, carbon spheres (from sooty material) and other material which could have been coal ash. There were a few identifiable plant remains, such as the bramble and raspberry seeds in layer 4005, which were all broken, so they could have come from a bird or animal dropping. The rest of the material was plant debris, including roots and probable bark remains.

Stream valleys can sometimes have useful organic layers that can be revealed by boring or excavation. However, in this case, none of the deposits assessed so far merit further analysis.

6.0: UPDATED PROJECT DESIGN

The boreholes have provided some, limited information concerning the natural landform to the west of Metchley fort. The borehole results should be published in summary form, ideally as an appendix to Roman Birmingham Volume 3, which will mainly describe the results of archaeological investigations within the area to the west of the fort.

As noted by Greig above the 20 samples assessed do not merit further analysis or reporting. A further six samples from contexts not hitherto examined will be selected for assessment, and, if merited, full analysis and reporting to contribute towards the aims identified in section 3.0 above. It is not recommended that any further samples are assessed or reported-on once the additional six samples are assessed/fully reported on.

7.0: TASK LIST

Task 1: A. Jones, select six further samples for environmental assessment.
Task 2: J. Greig, undertake environmental assessment of six samples.
Task 3: A. Jones and J. Greig, agree the extent, if any, of detailed analysis and reporting of the six additional sampling.
Task 4: J. Greig, report on further samples, as appropriate.
Task 5: A. Jones, integrate results of assessment, further analysis and borehole stratigraphy for final report.

8.0: ACKNOWLEDGEMENTS

The borehole investigations were commissioned by University Hospital Birmingham NHS Trust. The boreholes were investigated by Ground Investigations and Piling Limited. Assistance with access from Giles Atkinson (Consort, Birmingham New Hospital Project) is gratefully acknowledged. Recording was undertaken by Kate Bain, Kristina Krawiec and Dharminder Chuhan. Analysis was undertaken by James Greig. The illustrations were prepared by Nigel Dodds. The project was managed by Alex Jones.

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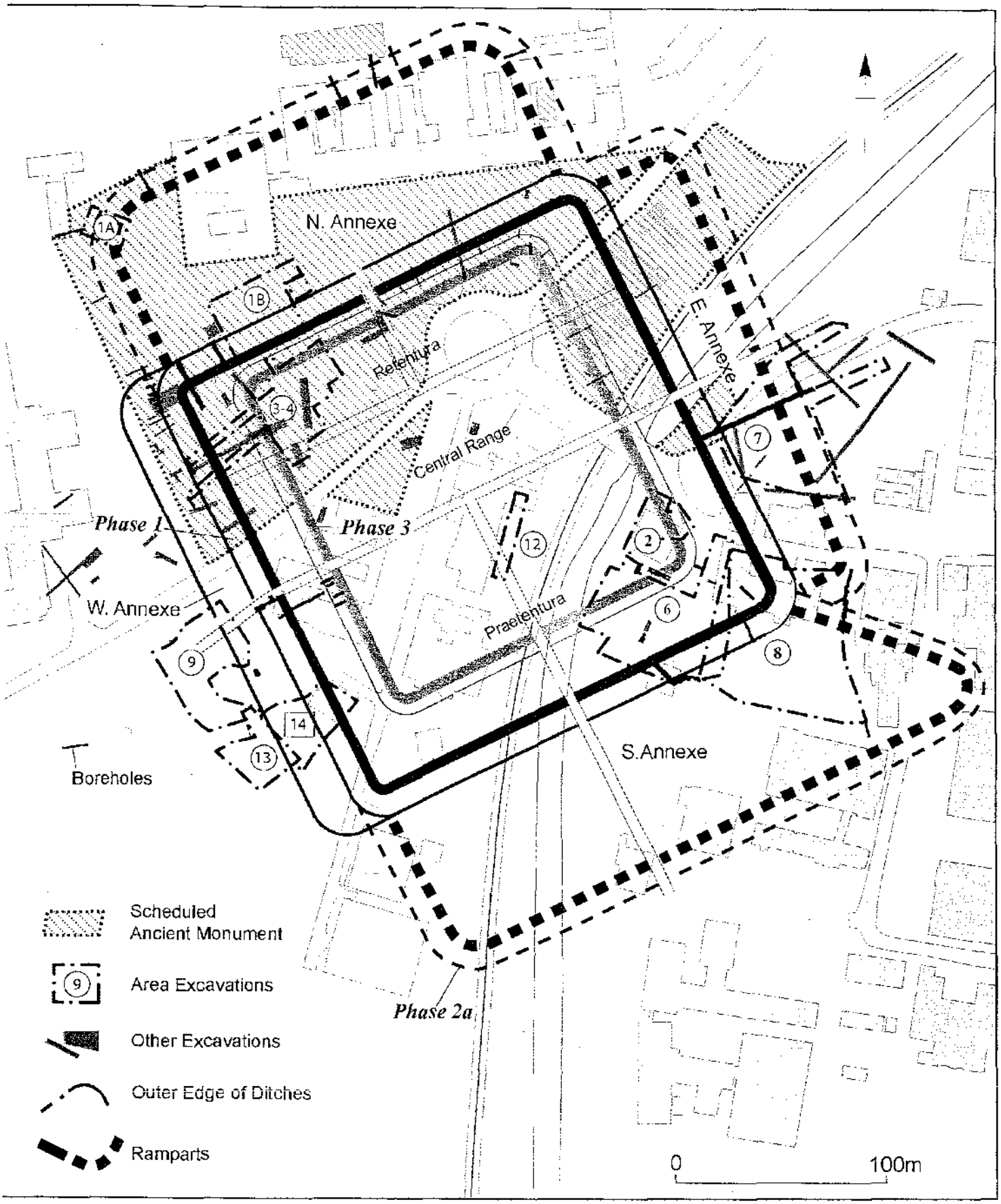
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1B
Retentura
3-4
Central Range
E. Annexe
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Phase 1
Phase 3
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2
W. Annexe
Praetentura
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9
14
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Boreholes
S.Annexe
Scheduled Ancient Monument
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Area Excavations
Other Excavations
Outer Edge of Ditches
Ramparts
Phase 2a
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Fig.1

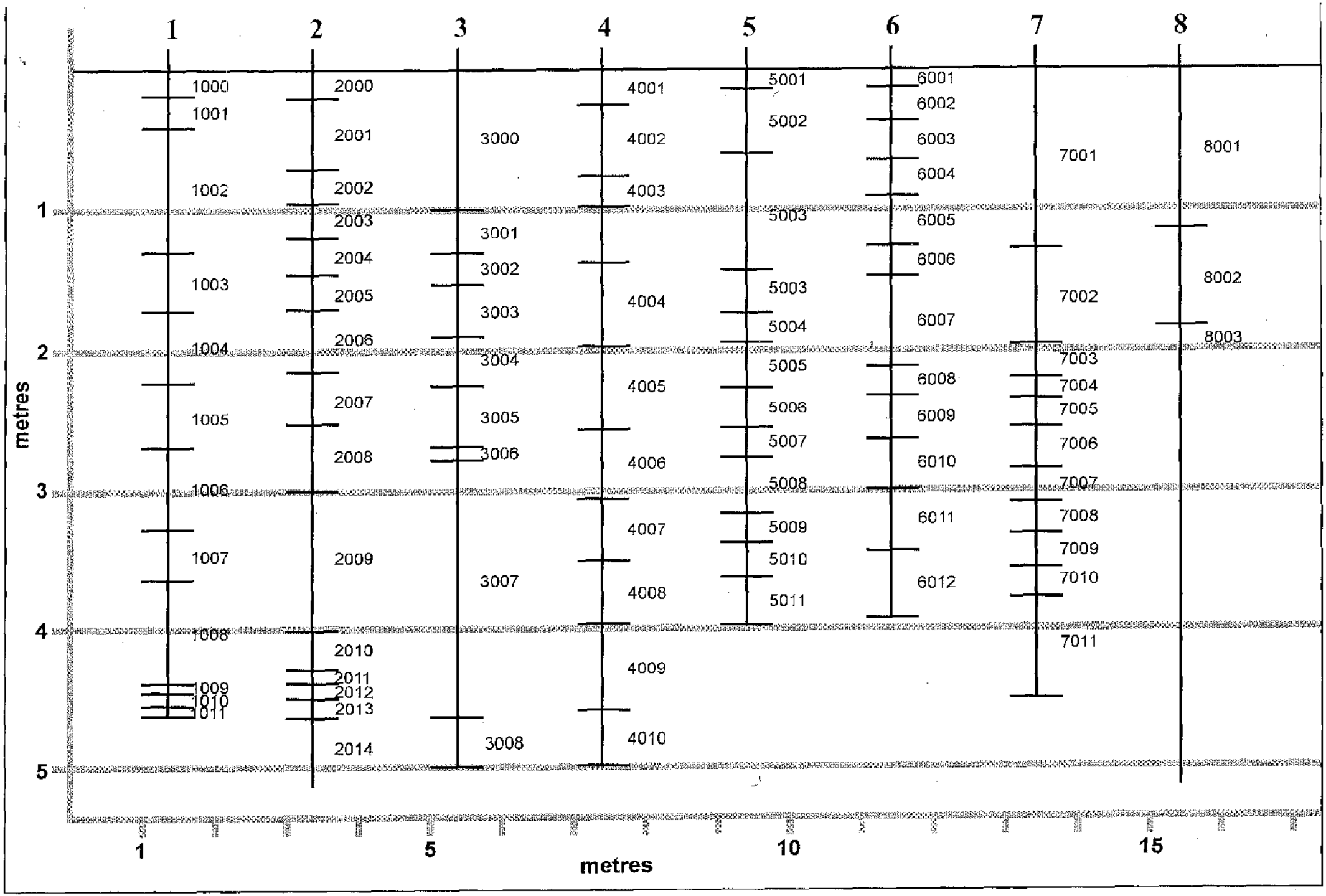
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Fig.2